

REMARKS

Claims 1, 4-7, 13-16, 18, 19 and 21 stand rejected under 35 USC 103(a) as being unpatentable over Lewit in view of Nishimura. This rejection is respectfully traversed.

Independent claims 2 and 3 have been amended to specify that “the weight per unit area of the carbon fiber reinforcing material is 100 to 2000 g/m² and the weight per unit area of the non-woven fabric is 5 to 30 g/m².” These limitations are already included in independent claim 1. Accordingly, all of the pending claims now include these limitations.

The Examiner admits that Lewit fails to teach the claimed weight per unit area of the non-woven fabric. However, the Examiner contends that obtaining the claimed weight per unit area of the non-woven fabric would have been accomplished through routine experimentation. According to the Examiner, “having chosen the claimed basis weight would have depended on the desired strength and flexibility of the resultant composite.”

The Examiner’s contention about the claimed weight per unit area of the non-woven material is incorrect and not supported by Lewit or the record. As stated by the court in *In re Lee*, 61 USPQ2d 1430, 1435 (Fed. Cir. 2002), when an examiner relies “on what they assert to be general knowledge to negate patentability, that knowledge must be articulated and place on the record.” The Examiner can not simply state that one of ordinary skill in the art would have been motivated to chose non-woven and carbon reinforcing materials having the claimed weight per unit areas without providing documented evidence that these specific weight per unit areas would be chosen.

This motivation is completely absent from Lewit, which actually teaches away from the claimed weight per unit area ranges. Lewit teaches methods of composite structures useful for fabricating articles such as boats. The composite structure includes a

reinforcing fabric layer and a non-woven fabric layer. Structural foam is injected into the non-woven fiber and a resin is injected into the reinforcing fabric. The weight basis of non-woven fiber is chosen to prevent penetration of the foam into the reinforcing fabric (see column 4, lines 44-49).

As stated on page 50, lines 4-7, Applicants' have created a complex fiber reinforcing material possessing excellent impact resistance because of non-woven fabric layers between the layers of a reinforcing material. As described on page 14, line 20, through page 15, line 6, if the claimed weight per unit area of the of the non-woven fabric is less than the claimed range, the impact resistance of the complex reinforcing material is reduced.

In addition, tables 1 and 2, on pages 48 and 49 respectively, also show the decrease in impact resistance and tensile strength that results from having less or more than the claimed amount of non-woven fabric. Comparative Examples 1 and 5 contain no non-woven fabric. The compression strength after falling weight impact (CAI) of Comparative Examples 1 and 5 is lower than Examples 1-6, which contain the claimed amount of non-woven fabric. Further, Comparative Examples 3 and 7 contain more than the claimed 30 g/m² non-woven fabric. As shown in tables 1 and 2, Comparative Examples 3 and 7 have a lower tensile strength than Examples 1-6, which contain the claimed amount of non-woven fabric.

The weight per unit area of non-woven fabric used for preventing the penetration of structural foam into the reinforcing fabric would not be the same as the weight per unit area for imparting excellent impact resistance and tensile strength as described by Applicants. The claimed weight per unit area of the carbon fiber reinforcing material is 100 to 2000 g/m² and the claimed weight per unit area of the non-woven fabric is 5 to 30 g/m². Accordingly, Applicants' non-woven fabric is thinner than the carbon reinforcing

material. In comparison, Figs. 1 and 5 of Lewit show a non-woven fabric that is thicker than the reinforcing fabric. Such a composite would not result in excellent impact resistance and tensile strength as described by Applicants. Again, this is because the non-woven fabric in Lewit is chosen to prevent penetration of the structural foam into the reinforcing fabric.

Since neither Lewit nor Nishimura teach, and actually teach against, the claimed weight per unit area of non-woven material and carbon reinforcing material, the rejection of claims 1, 4, 5, 7, 13-16, 18, 19 and 21, should be withdrawn. Claim 6 has been cancelled making the rejection of this claim moot.

Claims 3, 8-11 and 22 stand rejected under 35 USC 103(a) as being unpatentable over Lewit in view of Tadokoro. Claim 2 stands rejected under 35 USC 103(a) as being unpatentable over Lewit in view of Day. Claim 23 stands rejected under 35 USC 103(a) as being unpatentable over Lewit in view of Nishimura and Day. Claim 24 stands rejected under 35 USC 103(a) as being unpatentable over Lewit in view of Seemann. These rejections are respectfully traversed.

As stated above, the pending claims all specify that “the weight per unit area of the carbon fiber reinforcing material is 100 to 2000 g/m² and the weight per unit area of the non-woven fabric is 5 to 30 g/m².” Since all of the rejections include Lewit and Lewit teaches away from the claimed weight per unit area of carbon reinforcing material and non-woven fabric, the rejections concerning claims 2, 3, 8-10 and 22-24, should be withdrawn. Claim 11 has been cancelled, making the rejection of this claim moot.

For the foregoing reasons a notice of allowance is solicited.


In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorize the

Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **368042006800**.

Respectfully submitted,

DATED: July 22, 2004

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